RED SEAL

THE INTERPROVINCIAL STANDARDS RED SEAL PROGRAM

National Occupational Analysis

2009

Construction Craft Worker

Human Resources and Skills Development Canada
Ressources humaines et Développement des compétences Canada
Canada

Occupational Analyses Series

Construction Craft Worker

2009

Trades and Apprenticeship Division	Division des métiers et de l'apprentissage
Workplace Partnerships Directorate	Direction des partenariats en milieu de travail
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The Canadian Council of Directors of Apprenticeship (CCDA) recognizes this National Occupational Analysis as the national standard for the occupation of Construction Craft Worker.

Background

The first National Conference on Apprenticeship in Trades and Industries, held in Ottawa in 1952, recommended that the federal government be requested to cooperate with provincial and territorial apprenticeship committees and officials in preparing analyses of a number of skilled occupations. To this end, Human Resources and Skills Development Canada sponsors a program, under the guidance of the CCDA, to develop a series of National Occupational Analyses (NOA).

The NOAs have the following objectives:

- to describe and group the tasks performed by skilled workers;
- to identify which tasks are performed in every province and territory;
- to develop instruments for use in the preparation of Interprovincial Red Seal Examinations and curricula for training leading to the certification of skilled workers;
- to facilitate the mobility of apprentices and skilled workers in Canada; and,
- to supply employers, employees, associations, industries, training institutions and governments with analyses of occupations.

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TABLE OF CONTENTS

FOREWORD			I
ACKNOWLEDGEMENTS			II
TABLE OF CONTENTS			III
LIST OF PUBLISHED NATIONAL OCCUPATIONAL ANALYSES			V
STRUCTURE OF ANALYSIS			VII
DEVELOPMENT AND VALIDATION OF ANALYSIS			VIII
ANALYSIS			
SAFETY			3
SCOPE OF THE CONSTRUCTION CRAFT WORKER TRADE			4
OCCUPATIONAL OBSERVATIONS			6
BLOCK A	**OCCUPATIONAL SKILLS**		
	Task 1	Uses and maintains tools and equipment.	7
	Task 2	Organizes work.	11
	Task 3	Performs routine trade activities.	14
BLOCK B	**SITE WORK**		
	Task 4	Prepares site.	19
	Task 5	Performs ground work.	21
	Task 6	Services site.	24
	Task 7	Performs basic demolition.	29
	Task 8	Performs safety watches.	31
BLOCK C	**SCAFFOLDING AND ACCESS EQUIPMENT**		
	Task 9	Uses scaffolding.	35
	Task 10	Uses access equipment.	38
BLOCK D	**CONCRETE WORK**		
	Task 11	Forms concrete.	41
	Task 12	Places and finishes concrete.	44
	Task 13	Modifies concrete.	48
	Task 14	Installs grout, epoxies and caulking.	50

BLOCK E	**MASONRY WORK**		
	Task 15	Prepares for masonry work.	52
	Task 16	Tends to bricklayers.	54
BLOCK F	**UTILITIES AND PIPELINE**		
	Task 17	Installs utility piping.	57
	Task 18	Performs pipeline activities.	60
BLOCK G	**ROADWORK**		
	Task 19	Installs paving materials.	62
	Task 20	Installs roadwork components.	63

APPENDICES

APPENDIX A	**TOOLS AND EQUIPMENT**	69
APPENDIX B	**GLOSSARY**	73
APPENDIX C	**ACRONYMS**	75
APPENDIX D	**BLOCK AND TASK WEIGHTING**	77
APPENDIX E	**PIE CHART**	81
APPENDIX F	**TASK PROFILE CHART**	83

LIST OF PUBLISHED NATIONAL OCCUPATIONAL ANALYSES (Red Seal Trades)

TITLE	NOC* Code
Agricultural Equipment Technician (2007)	7312
Appliance Service Technician (2005)	7332
Automotive Painter (2005)	7322
Automotive Service Technician (2005)	7321
Baker (2006)	6252
Boilermaker (2008)	7262
Bricklayer (2007)	7281
Cabinetmaker (2007)	7272
Carpenter (2005)	7271
Concrete Finisher (2006)	7282
Construction Electrician (2008)	7241
Construction Craft Worker (2009)	7611
Cook (2008)	6242
Electrical Rewind Mechanic (1999)	7333
Electronics Technician – Consumer Products (1997)	2242
Floorcovering Installer (2005)	7295
Glazier (2008)	7292
Hairstylist (2005)	6271
Heavy Duty Equipment Technician (2004)	7312
Industrial Electrician (2008)	7242
Industrial Mechanic (Millwright) (2007)	7311
Instrumentation and Control Technician (2007)	2243
Insulator (Heat and Frost) (2007)	7293
Ironworker (Generalist) (2006)	7264
Ironworker (Reinforcing) (2006)	7264
Ironworker (Structural/Ornamental) (2006)	7264
Lather (Interior Systems Mechanic) (2007)	7284
Machinist (2005)	7231

* National Occupational Classification

TITLE	NOC* Code
Metal Fabricator (Fitter) (2008)	7263
Mobile Crane Operator (2006)	7371
Motorcycle Mechanic (2006)	7334
Motor Vehicle Body Repairer (Metal and Paint) (2005)	7322
Oil Burner Mechanic (2006)	7331
Painter and Decorator (2007)	7294
Partsperson (2005)	1472
Plumber (2008)	7251
Powerline Technician (2004)	7244
Recreation Vehicle Service Technician (2006)	7383
Refrigeration and Air Conditioning Mechanic (2004)	7313
Rig Technician (2008)	8232
Roofer (2006)	7291
Sheet Metal Worker (2006)	7261
Sprinkler System Installer (2003)	7252
Steamfitter — Pipefitter (2007)	7252
Tilesetter (2004)	7283
Tool and Die Maker (2005)	7232
Transport Trailer Technician (2008)	7321
Truck and Transport Mechanic (2007)	7321
Welder (2004)	7265

Requests for these National Occupational Analyses may be forwarded to:

Trades and Apprenticeship Division
Workplace Partnership Directorate
Human Resources and Skills Development Canada
140 Promenade du Portage, Phase IV, 5th Floor
Gatineau, Quebec K1A 0J9

These publications are also available to order or download online at: www.red-seal.ca. Links to Essential Skills Profiles for some of these trades are available on this website.

To facilitate understanding of the occupation, the work performed by tradespersons is divided into the following categories:

Blocks	the largest division within the analysis that is comprised of a distinct set of trade activities
Tasks	distinct actions that describe the activities within a block
Sub-Tasks	distinct actions that describe the activities within a task
Supporting Knowledge and Abilities	skills and knowledge that an individual must have to perform a sub-task

The analysis also provides the following information:

Trends	changes identified that impact or will impact the trade including work practices, technological advances, and new materials and equipment
Context	information to clarify the intent and meaning of tasks
Related Components	a list of products, items, materials and other elements relevant to the block
Tools and Equipment	categories of tools and equipment used to perform all tasks in the block; these tools and equipment are listed in Appendix A

The appendices located at the end of the analysis are described as follows:

Appendix A — Tools and Equipment	a non-exhaustive list of tools and equipment used in this trade
Appendix B — Glossary	definitions or explanations of selected technical terms used in the analysis
Appendix C — Acronyms	a list of acronyms used in the analysis with their full name
Appendix D — Block and Task Weighting	the block and task percentages submitted by each jurisdiction, and the national averages of these percentages; these national averages determine the number of questions for each block and task in the Interprovincial exam
Appendix E — Pie Chart	a graph which depicts the national percentages of exam questions assigned to blocks
Appendix F — Task Profile Chart	a chart which outlines graphically the blocks, tasks and sub-tasks of this analysis

Development of Analysis

A draft analysis is developed by a committee of industry experts in the field led by a team of facilitators from Human Resources and Skills Development Canada. This draft analysis breaks down all the tasks performed in the occupation and describes the knowledge and abilities required for a tradesperson to demonstrate competence in the trade.

Draft Review

The National Occupational Analysis (NOA) development team then forwards a copy of the analysis and its translation to provincial and territorial authorities for a review of its content and structure. Their recommendations are assessed and incorporated into the analysis.

Validation and Weighting

The analysis is sent to all provinces and territories for validation and weighting. Participating jurisdictions consult with industry to validate and weight the document, examining the blocks, tasks and sub-tasks of the analysis as follows:

BLOCKS	Each jurisdiction assigns a percentage of questions to each block for an examination that would cover the entire trade.
TASKS	Each jurisdiction assigns a percentage of exam questions to each task within a block.
SUB-TASKS	Each jurisdiction indicates, with a YES or NO, whether or not each sub-task is performed by skilled workers within the occupation in its jurisdiction.

The results of this exercise are submitted to the NOA development team who then analyzes the data and incorporates it into the document. The NOA provides the individual governmental validation results as well as the national averages of all responses. The national averages for block and task weighting guide the Interprovincial Red Seal Examination plan for the trade.

This method for the validation of the NOA also identifies common core sub-tasks across Canada for the occupation. If at least 70% of the responding jurisdictions perform a sub-task, it shall be considered common core. Interprovincial Red Seal Examinations are based on the common core sub-tasks identified through this validation process.

Definitions for Validation and Weighting

YES	sub-task performed by qualified workers in the occupation in a specific jurisdiction
NO	sub-task not performed by qualified workers in the occupation in a specific jurisdiction
NV	analysis Not Validated by a province/territory
ND	trade Not Designated in a province/territory
NOT COMMON CORE (NCC)	sub-task, task or block performed by less than 70% of responding jurisdictions; these will not be tested by the Interprovincial Red Seal Examination for the trade
National Average %	average percentage of questions assigned to each block and task in Interprovincial Red Seal Examination for the trade

Provincial/Territorial Abbreviations

NL	Newfoundland and Labrador
NS	Nova Scotia
PE	Prince Edward Island
NB	New Brunswick
QC	Quebec
ON	Ontario
MB	Manitoba
SK	Saskatchewan
AB	Alberta
BC	British Columbia
NT	Northwest Territories
YT	Yukon Territory
NU	Nunavut

ANALYSIS

Safe working procedures and conditions, accident prevention, and the preservation of health are of primary importance to industry in Canada. These responsibilities are shared and require the joint efforts of government, employers and employees. It is imperative that all parties become aware of circumstances that may lead to injury or harm. Safe learning experiences and work environments can be created by controlling the variables and behaviours that may contribute to accidents or injury.

It is generally recognized that safety-conscious attitudes and work practices contribute to a healthy, safe and accident-free work environment.

It is imperative to apply and be familiar with the Occupational Health and Safety (OH&S) Acts and Workplace Hazardous Materials Information System (WHMIS) Regulations. As well, it is essential to determine workplace hazards and take measures to protect oneself, co-workers, the public and the environment.

Safety education is an integral part of training in all jurisdictions. As safety is an imperative part of all trades, it is assumed and therefore it is not included as a qualifier of any activities. However, the technical safety tasks and sub-tasks specific to the trade are included in this analysis.

SCOPE OF THE CONSTRUCTION CRAFT WORKER TRADE

"Construction Craft Worker" is this trade's official Red Seal occupational title approved by the Canadian Council of Directors of Apprenticeship. This analysis covers tasks performed by construction craft workers whose occupational title has been identified by some provinces and territories of Canada under the following names:

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
Construction Craft Labourer			✓					✓	✓				
Construction Craft Worker	✓					✓							

Construction craft workers work mostly on construction sites; their tasks include site preparation and cleanup, setting up and removing access equipment, working on concrete and masonry, steel, wood and pre-cast erecting projects. They handle materials and equipment and perform demolition, excavation and compaction activities. They may also be responsible for site security.

Construction craft workers work on a wide variety of structures such as residential, commercial and industrial buildings, as well as hydroelectric dams, roadways, bridges and railways. In some jurisdictions, they may also work on utility, landscape and pipeline projects. Construction craft workers may work for private companies as well as municipal, provincial and federal governments.

With experience, construction craft workers who complete additional training may specialize in different areas of construction. This can include operating off-road vehicles, drilling and blasting, diving, tunnelling and performing emergency rescue. Another common responsibility is the management of pedestrian and vehicular traffic in situations involving potential hazards and public trust.

Construction craft workers work primarily outdoors, in all weather conditions. They are often required to work at heights, over water and in confined spaces and excavations. Their job settings may be in densely-populated urban settings or at remote locations. They often work overtime during peak construction periods.

Key attributes for workers in this trade are mechanical aptitude, manual dexterity and an ability to do hard physical work. They must also be able to work both as team members, and sometimes, to interact directly with the public where such considerations as safety and legal liability are at issue. They must also be able to work as part of a team. Organizational, leadership and plan reading skills are assets for anyone wanting to progress in this trade.

This analysis acknowledges similarities or overlaps with many construction trades. With experience, construction craft workers may advance to supervisory/foreman positions.

More construction craft workers are called upon to perform safety watches such as confined space watches and monitoring gases.

Due to more stringent environmental regulations, the industry is seeing an increased emphasis upon recycling requirements and other environmental protection activities. To meet these standards, construction craft workers are seeing an increase in duties, requiring a larger skilled workforce. These new standards are also associated with increased diversification of tasks undertaken by this trade, heightened demands for resourcefulness on the jobsite and capacity to function year-round rather than on a merely seasonal basis.

There is increased pressure from industry to accomplish tasks in a shorter time period even as year-round rather than seasonal work increasingly becomes a standard requirement of this trade.

Increased technological advances such as computers, pipe remediation, robotics is leading to an increased emphasis on training. Increased safety and technical training is being supported in the construction industry.

BLOCK A — OCCUPATIONAL SKILLS

Trends — There is an increased emphasis on safety in all aspects of a construction craft worker's job. In an effort to increase safety and to track performance, more documentation and training is required.

Related Components — All components apply.

Tools and Equipment — See Appendix A.

Task 1 — Uses and maintains tools and equipment.

Context — Construction craft workers use a wide variety of tools and equipment in order to carry out their daily tasks. In some jurisdictions, special training or certification may be required to operate some of these tools and equipment.

Sub-task 1.01 — Maintains hand tools.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

1.01.01	knowledge of types of hand tools such as hammers, pry bars and screwdrivers
1.01.02	ability to organize hand tools
1.01.03	ability to sharpen hand tools such as scrapers and chisels
1.01.04	ability to clean hand tools
1.01.05	ability to store hand tools
1.01.06	ability to recognize worn, damaged or defective hand tools

Sub-task
1.02 **Maintains power tools.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

1.02.01	knowledge of types of electric and gas power tools such as chippers, quick-cut saws, circular saws and reciprocating saws
1.02.02	knowledge of types of hydraulic power tools such as jacks, hammers and rock splitters
1.02.03	knowledge of types of pneumatic power tools such as jackhammers, and drills
1.02.04	ability to organize power tools
1.02.05	ability to monitor and lubricate moving parts
1.02.06	ability to clean power tools
1.02.07	ability to store power tools
1.02.08	ability to replace components such as springs, bits and blades
1.02.09	ability to recognize worn, damaged or defective power tools

Sub-task
1.03 **Maintains powder-actuated tools.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	no	no	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

1.03.01	knowledge of types of powder-actuated tools such as manual and trigger-operated
1.03.02	knowledge of applications of powder-actuated tools
1.03.03	knowledge of training and certification requirements
1.03.04	ability to clean powder-actuated tools
1.03.05	ability to choose proper powder charge for task
1.03.06	ability to check operation of powder-actuated tools
1.03.07	ability to recognize and dispose of misfired shots
1.03.08	ability to recognize excessive wear and deformities

1.03.09 ability to store powder-actuated tools and shots

Sub-task 1.04 **Uses rigging and hoisting equipment.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

1.04.01 knowledge of types of rigging equipment such as shackles, turnbuckles and slings

1.04.02 knowledge of types of hoisting equipment such as come-alongs, chainfalls and grip hoists

1.04.03 knowledge of the uses and limitations of rigging and hoisting equipment

1.04.04 knowledge of rigging and hoisting equipment regulations

1.04.05 knowledge of training and certification requirements

1.04.06 knowledge of types of loads such as liquid, reinforcing steel and tilt-up panels

1.04.07 knowledge of load radius and center of gravity

1.04.08 knowledge of rated capacity of hardware

1.04.09 ability to ensure that lifting points are rated for lifts when using manual lifting devices

1.04.10 ability to select equipment for use

1.04.11 ability to rig loads using components such as shackles, softeners and slings

1.04.12 ability to inspect rigging and hoisting equipment for wear, damage and defects

1.04.13 ability to maintain rigging and hoisting equipment

1.04.14 ability to store rigging and hoisting equipment

Sub-task 1.05 **Uses stationary equipment.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

1.05.01	knowledge of stationary equipment such as water pumps, concrete pumps, heaters, generators, compressors and light plants
1.05.02	knowledge of types of pumps such as electric, hydraulic and fuel-powered
1.05.03	knowledge of types of heaters such as electric, fuel-fired and steam
1.05.04	knowledge of operation of equipment
1.05.05	knowledge of when and where to use stationary equipment
1.05.06	ability to start diesel and gasoline engines
1.05.07	ability to recognize hazards of using stationary equipment
1.05.08	ability to select, find and place equipment for use
1.05.09	ability to set up and secure equipment
1.05.10	ability to inspect equipment and components for damage and faults such as abraded hoses, frayed electrical cords and leaks
1.05.11	ability to monitor and maintain fluids
1.05.12	ability to monitor and lubricate moving parts
1.05.13	ability to store stationary equipment

Sub-task

1.06 **Uses personal protective equipment (PPE) and safety equipment.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

1.06.01	knowledge of types of PPE such as safety boots, harnesses, hearing protection and respirators
1.06.02	knowledge of types of safety equipment such as fire extinguishers, first aid kits, safety tape and barricades
1.06.03	knowledge of PPE and safety equipment operations
1.06.04	knowledge of training and certification requirements for using PPE and safety equipment
1.06.05	knowledge of location of PPE and safety equipment
1.06.06	knowledge of workplace safety and health regulations regarding the use of PPE and safety equipment
1.06.07	knowledge of the limitations of PPE such as respirators and fall protection equipment

1.06.08	knowledge of types and operation of fire extinguishing equipment
1.06.09	ability to select types of fall protection equipment
1.06.10	ability to select PPE according to application
1.06.11	ability to inspect PPE and safety equipment for damage and defects
1.06.12	ability to store PPE and safety equipment

Task 2 — Organizes work.

Context Construction craft workers must use a variety of documents, communicate with others, and plan their specific tasks in order to organize their work. Communication on the work site is crucial in order to complete the work in a safe and efficient manner.

Sub-task 2.01 — Uses documentation.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

2.01.01	knowledge of types of documentation such as work records, Job Hazard Analysis (JHA), codes and regulations
2.01.02	knowledge of safety documentation such as Material Safety Data Sheets (MSDS), Workplace Hazardous Materials Information System (WHMIS) symbols and monitoring sheets for safety watches
2.01.03	knowledge of site-specific documentation such as safe work permits and job procedure manuals
2.01.04	ability to interpret drawings such as blueprints, engineering drawings and sketches
2.01.05	ability to locate information such as job procedures, Occupational Health and Safety (OH&S) regulations and MSDS
2.01.06	ability to interpret manufacturers' specifications and safe operating procedures for equipment
2.01.07	ability to interpret work orders
2.01.08	ability to interpret governmental and national codes
2.01.09	ability to draw a sketch

2.01.10	ability to complete work-related records
2.01.11	ability to check material received against work orders and specifications
2.01.12	ability to document jobsite issues
2.01.13	ability to interpret regulations such as environmental and OH&S
2.01.14	ability to remain current with regulations

Sub-task
2.02 **Communicates with others.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

2.02.01	knowledge of public relations
2.02.02	knowledge of trade terminology
2.02.03	knowledge of verbal and written communication
2.02.04	ability to explain technical information using layperson's terminology
2.02.05	ability to acquire information through questioning
2.02.06	ability to use communication equipment such as radios, cell phones and plant phones
2.02.07	ability to communicate with supervisors
2.02.08	ability to consult with co-workers
2.02.09	ability to communicate with other tradespersons
2.02.10	ability to consult with authorities having jurisdiction such as safety reps and operations staff
2.02.11	ability to use international hand signals
2.02.12	ability to mentor apprentices
2.02.13	ability to use scaffolding signals and terminology

Sub-task
2.03 **Maintains safe work environment.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

2.03.01	knowledge of WHMIS
2.03.02	knowledge of locations of WHMIS documents
2.03.03	knowledge of workers' rights and responsibilities
2.03.04	knowledge of company safety policies and procedures
2.03.05	knowledge of transportation of dangerous goods (TDG) procedures
2.03.06	knowledge of training and certification requirements such as traffic control, fall protection and confined space
2.03.07	knowledge of emergency procedures
2.03.08	knowledge of disposal and recycling procedures
2.03.09	ability to apply WHMIS procedures
2.03.10	ability to recognize personal injury hazards
2.03.11	ability to report and prevent potential hazards
2.03.12	ability to recognize and correct unsafe work practices

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Sub-task
2.04 **Organizes individual's work tasks.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

2.04.01	knowledge of requirements for task
2.04.02	knowledge of limitations of equipment and material
2.04.03	knowledge of hazards of task
2.04.04	knowledge of sequence of construction tasks
2.04.05	knowledge of jobsite roles and responsibilities
2.04.06	ability to coordinate work tasks with other workers
2.04.07	ability to guide equipment such as hoisting equipment, skid steers and excavators
2.04.08	ability to place material for task
2.04.09	ability to select and store tools and equipment

Task 3 — Performs routine trade activities.

Context

Construction craft workers perform various routine tasks throughout all major areas of the trade. Establishing and maintaining grades and elevations is an important part of a construction craft worker's duties.

Some of the activities within this section, especially establishing grades and elevations and traffic control, require specialized training or certification. Traffic control applies to vehicular, pedestrian and co-worker traffic.

Sub-task 3.01 — Handles construction materials.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

3.01.01	knowledge of types of materials such as lumber, earth, piping, concrete and masonry units
3.01.02	knowledge of required and available storage area
3.01.03	knowledge of effects of environmental and chemical exposure on workers and materials
3.01.04	knowledge of manual lifting procedures
3.01.05	ability to load and unload materials, and secure for transport
3.01.06	ability to recognize hazards of handling and storing materials such as propane tanks and oxy-acetylene tanks
3.01.07	ability to secure materials such as propane tanks, pipes and lumber
3.01.08	ability to store materials for easy access and egress

Sub-task 3.02 — Perform housekeeping duties.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

3.02.01	knowledge of equipment such as forklifts, wheelbarrows and telescoping booms
3.02.02	ability to select and use housekeeping tools and equipment
3.02.03	ability to pick up loose material
3.02.04	ability to control dust using dust control measures such as water, calcium and sweeping compound
3.02.05	ability to move equipment and material throughout the task
3.02.06	ability to keep jobsite organized

Sub-task
3.03 **Erects hoarding/enclosures.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

3.03.01	knowledge of types of hoarding material such as insulated tarpaulins, polyethylene and plywood
3.03.02	knowledge of applications of hoarding/enclosures such as enclosing scaffolding, concrete formwork and earth
3.03.03	knowledge of environmental conditions such as wind, snow and rain and their potential impact
3.03.04	knowledge of types of framework for hoarding/enclosures such as scaffolding, existing structures and wood
3.03.05	ability to secure hoarding/enclosures with materials such as wire, nails, rope, cable and weights
3.03.06	ability to install access and egress
3.03.07	ability to recognize hazards of providing heat in hoarding/enclosures
3.03.08	ability to dismantle hoarding/enclosures

Sub-task
3.04 **Installs membranes.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	no	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

3.04.01	knowledge of types of membranes such as polyethylene, waterproofing membranes and landscaping fabric
3.04.02	knowledge of application methods such as gluing, torching and spraying
3.04.03	knowledge of locations where membranes are required such as below grade, on walls and behind masonry units
3.04.04	ability to inspect walls for deformities prior to installation
3.04.05	ability to prepare concrete using methods such as "roughing up", washing, grinding high spots and priming
3.04.06	ability to apply membranes according to manufacturers' specifications
3.04.07	ability to protect membranes with materials such as treated wood, styrofoam and fiberboard

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Sub-task
3.05 **Installs insulating materials.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

3.05.01	knowledge of types of insulating materials such as styrofoam, fireproofing materials, straw and fiberglass
3.05.02	knowledge of applications of insulating materials such as preventing underground piping, sewers and concrete from freezing
3.05.03	knowledge of manufacturers' and engineering specifications
3.05.04	knowledge of job requirements for insulation
3.05.05	ability to select and use tools and equipment such as powder-actuated tools, trowels, hammers and drills
3.05.06	ability to cut, secure and tape insulating materials
3.05.07	ability to apply spray-on insulation

Sub-task

3.06 **Establishes grades and elevations.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

3.06.01	knowledge of applications where grades and elevations must be established such as roadwork, utilities and concrete placement
3.06.02	knowledge of required grades and elevations according to plans and specifications
3.06.03	knowledge of types of benchmarks such as marks on fire hydrants, nail and ribbon, and grade stakes
3.06.04	knowledge of the use of monuments and benchmarks
3.06.05	ability to find monuments and benchmarks
3.06.06	ability to work from temporary benchmarks
3.06.07	ability to work with surveyors
3.06.08	ability to select and use tools and equipment such as metal detectors, builders' and laser levels, and theodolites
3.06.09	ability to establish sub- and finish-grades

Sub-task

3.07 **Performs traffic control.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

3.07.01	knowledge of worksites requiring traffic control such as roadwork, utility installation and concrete placement
3.07.02	knowledge of types of travel restrictive systems such as barricades, flagging and barriers
3.07.03	knowledge of regulations regarding traffic control
3.07.04	knowledge of training and certification requirements
3.07.05	ability to control traffic in occupied buildings
3.07.06	ability to perform duties of traffic control person (flagman)
3.07.07	ability to install temporary signs, signals and pylons

3.07.08	ability to set up detours for vehicles and pedestrians
3.07.09	ability to construct temporary guardrails and covered walkways

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Sub-task
3.08 **Installs permanent and temporary fencing.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

3.08.01	knowledge of fencing types such as snow, chain link and silt
3.08.02	knowledge of applications that require fencing such as limiting access, environmental protection and security purposes
3.08.03	ability to select and locate fencing for application
3.08.04	ability to select and install posts such as wood and metal
3.08.05	ability to use structures to secure fencing
3.08.06	ability to select and use tools and equipment such as augers, skid steers, post pounders and backfill equipment

BLOCK B — SITE WORK

Trends

New technology requires a broader range of knowledge and skills. This increases the training necessary for construction craft workers to perform their tasks.

Safety concerns within the industry are leading to increased safety-related duties such as monitoring hazardous environments and confined-spaces.

Stricter environmental regulations are changing the way construction material is handled. This requires more stringent methods for the disposal and recycling of existing material or components.

Related Components

All components apply.

Tools and Equipment

See Appendix A.

Task 4 — Prepares site.

Context

Construction craft workers are the first and last workers on a construction site. They clear sites and set up temporary facilities and utilities, allowing other trades to perform their tasks. This is also called mobilization.

If required, depending on soil conditions, pilings are placed after the site is cleared.

Sub-task 4.01 — **Clears site.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

4.01.01	knowledge of governmental regulations
4.01.02	knowledge of safe work permit requirements

4.01.03	knowledge of environmental requirements
4.01.04	knowledge of pre-existing site conditions and existing utilities
4.01.05	knowledge of work-site and set-up requirements such as locations of temporary buildings and fencing
4.01.06	knowledge of employer requirements such as pre job-hazard assessments and safety considerations
4.01.07	knowledge of areas to protect prior to work being performed
4.01.08	ability to select and use tools and equipment such as chain saws, surveying equipment, shovels, drills and picks
4.01.09	ability to bring site to working condition by performing actions such as removing debris and material, clearing brush, moving dirt and rocks, and stripping existing asphalt and concrete
4.01.10	ability to interpret colour-coded flags and markers used to locate utilities

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Sub-task
4.02 **Sets up site facilities.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

4.02.01	knowledge of governmental regulations
4.02.02	knowledge of safe work permit requirements
4.02.03	knowledge of work-site and set-up requirements such as locations of temporary buildings and fencing
4.02.04	knowledge of pre-existing utilities
4.02.05	ability to select and use tools and equipment such as forklifts, hydraulic jacks and air drills
4.02.06	ability to set up temporary utilities such as water and sewer and assist in the set up of electrical systems
4.02.07	ability to place and level facilities such as work and warehouse trailers, lunch rooms and washrooms
4.02.08	ability to install stairs and temporary connecting platforms to trailers
4.02.09	ability to place safety equipment such as fire extinguishers, eye wash stations and first aid kits in specified locations
4.02.10	ability to set up equipment such as photocopiers, tables, chairs and refrigerators
4.02.11	ability to move equipment and facilities as required

Sub-task 4.03 Assists in installation of pilings.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

4.03.01	knowledge of location of pilings such as on land or in water
4.03.02	knowledge of safety and rescue regulations and requirements
4.03.03	knowledge of soil types and their designations
4.03.04	knowledge of types of machinery such as pile drivers, pile drillers and cranes
4.03.05	knowledge of types of pilings such as concrete, H-beam, sheet and steel
4.03.06	knowledge of rigging requirements
4.03.07	ability to assist in setting up and dismantling piling machines
4.03.08	ability to set up machinery by connecting hoses and compressors
4.03.09	ability to adjust to changing work environments such as working on boats and barges, and off sheet pilings
4.03.10	ability to clear debris out of piling holes
4.03.11	ability to guide pilings into position
4.03.12	ability to select and use tools and equipment such as measuring tapes, levels, grinders and cutting torches
4.03.13	ability to measure, modify and place rebar cages in pile holes
4.03.14	ability to inspect piles to ensure they are plumb and in position
4.03.15	ability to inform supervisors of problems and progress

Task 5 Performs ground work.

Context

Ground work is done on industrial, commercial, residential, institutional and civil sites (roads, bridges, railways).

Excavation is a procedure to break ground, remove existing material and allow components to be installed within the excavation site.

Backfilling is the activity of filling an excavation.

Compaction is an action that may be required to consolidate backfill.

Sub-task
5.01 **Locates underground utilities.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

5.01.01	knowledge of safe work permit requirements
5.01.02	knowledge of soil conditions
5.01.03	knowledge of pre-existing site conditions and existing utilities
5.01.04	ability to select and use tools and equipment
5.01.05	ability to expose utilities (daylighting)

Sub-task
5.02 **Performs excavation.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

5.02.01	knowledge of governmental regulations
5.02.02	knowledge of types of soil such as clay, sand and gravel
5.02.03	knowledge of types of sub-grades
5.02.04	knowledge of depth and angle of repose of excavation
5.02.05	knowledge of pre-existing site conditions and existing utilities
5.02.06	ability to select and use tools and equipment such as shovels and jackhammers
5.02.07	ability to perform hand excavations and machine-assisted excavations
5.02.08	ability to use excavation methods according to application
5.02.09	ability to guide heavy equipment operator to accomplish required tasks such as digging to required depth and slope
5.02.10	ability to install temporary access and egress to trenches and other excavations
5.02.11	ability to take measurements

Sub-task
5.03 **Installs excavation shoring.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

5.03.01	knowledge of governmental regulations
5.03.02	knowledge of certification and inspection requirements for shoring and trench boxes
5.03.03	knowledge of types of soil such as clay, sand and gravel
5.03.04	knowledge of trench depth and angle of repose
5.03.05	knowledge of types of shoring such as sheet pilings, wood structures, steel structures and trench boxes
5.03.06	ability to select and use tools and equipment
5.03.07	ability to assemble and place shoring and trench boxes
5.03.08	ability to guide heavy equipment operator to accomplish required tasks such as picking up shoring and digging to required depth
5.03.09	ability to install temporary access and egress to trench

Sub-task
5.04 **Performs backfill and compaction.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

5.04.01	knowledge of types of material used for backfill such as gravel, sand and Fillcrete
5.04.02	knowledge of type and thickness of finished road surface to be placed
5.04.03	knowledge of moisture content and compaction rates
5.04.04	knowledge of required equipment and corresponding safety requirements
5.04.05	knowledge of bulking
5.04.06	knowledge of type and amount of backfill material needed
5.04.07	knowledge of the use of water during compactation

5.04.08	ability to select and use tools and equipment such as compacting equipment, measuring equipment and shovels
5.04.09	ability to assess type and amount of backfill material needed
5.04.10	ability to guide heavy equipment operator in operations such as finishing roadwork sub-grade and compactable lifts
5.04.11	ability to install excavation components such as weeping tiles, culverts, manholes and piping
5.04.12	ability to follow backfill and compaction procedures according to applications such as covering utilities, installing shoring and preparing to pour concrete

Task 6 — Services site.

Context Construction craft workers perform general maintenance activities. This helps to ensure a safe, clean and efficient workplace within governmental or jobsite-specific rules and regulations.

Sub-task 6.01 — Cleans site.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

6.01.01	knowledge of materials used in construction
6.01.02	knowledge of WHMIS
6.01.03	knowledge of company- or site-specific procedures for controlled materials
6.01.04	ability to select and use tools and equipment
6.01.05	ability to recognize material that can be used or reused in other applications
6.01.06	ability to store material in identified locations
6.01.07	ability to select and use dust control methods to keep dust levels within permissible limits
6.01.08	ability to dispose of material according to site rules
6.01.09	ability to recognize and control hazards by performing actions such as removing tripping hazards, cleaning spills, rerouting cords and notifying appropriate authority as needed

6.01.10 ability to assess weather conditions and take appropriate actions such as removing snow, de-icing and ensuring material is secured in windy conditions

6.01.11 ability to control ground contamination by using appropriate spill kits

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Sub-task 6.02 **Cleans jobsite facilities.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

6.02.01 knowledge of types of facilities to be cleaned and corresponding procedures to be used

6.02.02 knowledge of bio-hazardous materials

6.02.03 knowledge of hazards associated with cleaning products

6.02.04 knowledge of WHMIS

6.02.05 knowledge of site-specific requirements such as vaccination and the use of haz-mat protection

6.02.06 ability to select and use tools, equipment and cleaning products

6.02.07 ability to apply cleaning techniques

6.02.08 ability to dispose of waste and cleaning products according to established procedures

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Sub-task 6.03 **Removes hazardous materials.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

6.03.01 knowledge of types of hazardous materials

6.03.02 knowledge of types of PPE required

6.03.03 knowledge of site-specific and governmental rules for handling hazardous materials

6.03.04 knowledge of WHMIS

6.03.05	ability to select and use tools and equipment
6.03.06	ability to identify hazardous materials
6.03.07	ability to handle, store and dispose of hazardous materials according to established procedures

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Sub-task
6.04 **Controls water runoff.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

6.04.01	knowledge of grade
6.04.02	knowledge of governmental and site-specific rules and regulations
6.04.03	knowledge of uses of settling ponds
6.04.04	ability to select and use tools and equipment
6.04.05	ability to apply preventative measures such as installing environmental fencing and other barriers to prevent environmental contamination or to control damage
6.04.06	ability to dig trenches and build berms

Sub-task
6.05 **Sets up temporary lighting.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

6.05.01	knowledge of types of temporary lighting such as string lights, quartz lighting, light plants and tower lights
6.05.02	knowledge of installation and maintenance procedures for temporary lighting
6.05.03	knowledge of lock-out and tag-out procedures
6.05.04	knowledge of ground fault circuit interrupter (GFCI) use
6.05.05	ability to select and use tools and equipment
6.05.06	ability to level and stabilize tower lights

6.05.07	ability to inspect and maintain temporary lighting
6.05.08	ability to start and maintain gas or diesel-powered light plants (tower lights)

Sub-task 6.06 **Sets up generators and compressors.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

6.06.01	knowledge of governmental rules and regulations regarding noise levels
6.06.02	knowledge of training and certification requirements
6.06.03	knowledge of types of fuel used in generators and compressors such as gas and diesel
6.06.04	knowledge of sizes and uses of generators and compressors
6.06.05	knowledge of ventilation requirements
6.06.06	knowledge of start-up and shut-down procedures for generators and compressors
6.06.07	ability to maintain generators and compressors using methods such as checking oil and fuel levels, replacing valve handles and bleeding condensation from tank
6.06.08	ability to position and level generators and compressors
6.06.09	ability to connect compressor fittings such as quick couplings and air hoses according to specifications
6.06.10	ability to interpret and adjust gauges on compressors
6.06.11	ability to select attachment hoses and appropriate whip checks
6.06.12	ability to select and place compressors and attachments used for tool operation

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Sub-task 6.07 **Performs site restoration.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

6.07.01	knowledge of site conditions
6.07.02	knowledge of governmental rules and regulations
6.07.03	knowledge of areas protected prior to work being performed
6.07.04	knowledge of activities that require additional protection such as controlled zones and shielding
6.07.05	knowledge of types of restoration activities such as replacing landscaping and replacing removed material and equipment
6.07.06	ability to select and use tools and equipment
6.07.07	ability to return site to original condition within acceptable parameters by performing activities such as landscaping and replacing removed material and equipment
6.07.08	ability to document original conditions of jobsite for restoration and other purposes

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Sub-task 6.08 Mans tool crib.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

6.08.01	knowledge of tools, equipment, supplies and consumables
6.08.02	knowledge of security requirements for tool crib
6.08.03	ability to perform inventory control
6.08.04	ability to sign out and sign in tools and equipment
6.08.05	ability to perform maintenance and do minor repairs on tools and equipment
6.08.06	ability to organize the tool crib

Sub-task 6.09 Recycles materials.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

6.09.01	knowledge of governmental and company-specific rules and regulations regarding recycling
6.09.02	knowledge of materials that can be recycled
6.09.03	ability to sort and store recycled materials
6.09.04	ability to prepare recycled materials for shipping
6.09.05	ability to identify materials that can be reused onsite such as forms, plywood and steel

Task 7 Performs basic demolition.

Context Construction craft workers dismantle and remove components, structures and buildings on industrial, commercial, residential, institutional and civil sites. The process of dismantling changes according to site rules and conditions. Some construction craft workers can specialize in areas such as hazardous waste demolition or hydro-demolition.

Sub-task 7.01 Cuts materials.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

7.01.01	knowledge of types of material being cut
7.01.02	knowledge of types of cutting techniques according to application
7.01.03	knowledge of dismantling techniques
7.01.04	knowledge of hazards associated with cutting material
7.01.05	knowledge of governmental and jobsite rules and regulations
7.01.06	knowledge of PPE required
7.01.07	knowledge of operating methods of oxy-acetylene and propane torches such as igniting, setting gauges and selecting tip types
7.01.08	ability to select and use cutting tools and equipment such as torches, grinders and saws

7.01.09	ability to read gauges on oxy-acetylene torches
7.01.10	ability to select attachments for cutting tools and equipment
7.01.11	ability to select and use dust control methods to keep dust levels within permissible limits
7.01.12	ability to apply spark-control methods
7.01.13	ability to turn off utilities such as water and electrical
7.01.14	ability to test electrical systems to ensure they are de-energized

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Sub-task 7.02 **Dismantles existing structures and components.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

7.02.01	knowledge of material to be removed from specific jobsites
7.02.02	knowledge of removal techniques according to application
7.02.03	knowledge of governmental and jobsite rules and regulations
7.02.04	knowledge of PPE required
7.02.05	ability to select and use tools and equipment such as pneumatic jackhammers, sledge hammers and mobile equipment
7.02.06	ability to select attachments for tools and equipment such as jackhammer bits, spade bits and saw blades
7.02.07	ability to recognize load bearing walls and other structural components
7.02.08	ability to set up chutes and bins for disposal of material
7.02.09	ability to select and use dust control methods to keep dust levels within permissible limits
7.02.10	ability to apply spark-control methods
7.02.11	ability to recognize hazardous materials such as asbestos, lead-based materials and concrete
7.02.12	ability to isolate or lock out/tag out utilities such as water and electrical
7.02.13	ability to test electrical systems to ensure they are de-energized

Task 8 Performs safety watches.

Context Safety watches are done by construction craft workers when co-workers are working in conditions that require monitoring. In some areas, performing these tasks may require additional training and certification.

Sub-task 8.01 Monitors hazardous gases.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

8.01.01	knowledge of types and characteristics of gases such as hydrogen sulphide (H_2S), carbon monoxide (CO) and methane
8.01.02	knowledge of areas to be monitored
8.01.03	knowledge of work being performed
8.01.04	knowledge of types of monitoring equipment
8.01.05	knowledge of permissible exposure levels
8.01.06	knowledge of time weighted averages
8.01.07	knowledge of governmental and site-specific rules and regulations
8.01.08	knowledge of evacuation plans
8.01.09	ability to select and use monitoring equipment
8.01.10	ability to interpret readings and alarms on monitoring equipment
8.01.11	ability to zero monitoring equipment
8.01.12	ability to record readings
8.01.13	ability to alert others when atmospheric conditions change

Sub-task 8.02 Performs spark watch.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

8.02.01	knowledge of governmental and site-specific rules and regulations
8.02.02	knowledge of area where work is being performed
8.02.03	knowledge of work being performed such as welding, cutting and grinding
8.02.04	knowledge of combustible and non-combustible materials
8.02.05	knowledge of evacuation plans
8.02.06	ability to select and use tools and equipment such as fire extinguishing equipment and monitors
8.02.07	ability to assess conditions and apply appropriate measures such as using appropriate fire extinguisher, alerting others to evacuate jobsite and calling emergency services

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Sub-task 8.03 **Performs bottle watch.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

8.03.01	knowledge of governmental and site-specific rules and regulations
8.03.02	knowledge of area where work is being performed
8.03.03	knowledge of work being performed such as media blasting
8.03.04	knowledge of types of compressed gases that need to be monitored such as breathable air and propane
8.03.05	knowledge of the meaning of gauge readings
8.03.06	ability to read and understand gauge readings to recognize when bottles need to be changed or when alternate sources need to be activated
8.03.07	ability to change bottles when they are getting near critical levels
8.03.08	ability to inform confined space attendee of changed or changing conditions

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Sub-task 8.04 **Performs confined space watch.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

8.04.01	knowledge of what defines a confined space according to governmental or site rules, regulations and specifications
8.04.02	knowledge of training and certification required to perform confined space watch
8.04.03	knowledge of types and characteristics of gases such as H_2S, CO and methane
8.04.04	knowledge of the characteristics of the areas to be monitored
8.04.05	knowledge of work being performed
8.04.06	knowledge of types of monitoring equipment
8.04.07	knowledge of permissible exposure levels
8.04.08	knowledge of time weighted averages
8.04.09	knowledge of emergency rescue and evacuation plans
8.04.10	knowledge of rescue and evacuation equipment such as tripods, harnesses, anklets and lifelines
8.04.11	knowledge of communication methods such as hand signals, rope signals and using radios
8.04.12	ability to use confined space entry equipment
8.04.13	ability to select and use monitoring equipment
8.04.14	ability to interpret readings and alarms on monitoring equipment
8.04.15	ability to zero monitoring equipment
8.04.16	ability to alert others of changes in working conditions such as atmospheric changes, environmental changes and hazardous activities around work area
8.04.17	ability to record readings
8.04.18	ability to assess conditions and apply appropriate measures such as calling emergency and rescue services

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Sub-task

8.05 **Monitors heaters.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

8.05.01	knowledge of propane certification
8.05.02	knowledge of types of heaters such as propane, electric and radiant

8.05.03	knowledge of governmental regulations and job-specific rules
8.05.04	ability to read and understand gauge readings
8.05.05	ability to keep heaters operating
8.05.06	ability to inspect heaters and their surroundings
8.05.07	ability to recognize hazards of using heaters such as melting tarpaulins, fires and leaks

BLOCK C — SCAFFOLDING AND ACCESS EQUIPMENT

Trends

Scaffolding and ladders are being constructed with lighter and stronger materials. They are designed for easier setup and use.

New designs of scaffolding and access equipment such as mast-climber scaffolding systems are becoming more common.

Power elevated platforms have been introduced with longer reach and more mechanized equipment. They have more safety features such as warning signals and automatic stops for unsafe operating conditions.

Related Components (include, but not limited to)

Scaffolding: platforms, cross bracing, base plates, screw jacks, outriggers, brackets, safety pins, tubes, clamps, Aluma beams, bolts, castors, wheels.

Ladders: extension, platform, stepladders.

Power elevated work platforms: scissor lifts, manlifts, swing stages, knuckle boom.

Tools and Equipment

Hand tools, power tools, measuring tools, PPE and safety equipment.

Task 9 — Uses scaffolding.

Context

Scaffolding is used as a work platform to access work areas at heights. It is important for construction craft workers to be competent in its use to perform many of their tasks safely. It can also be used as overhead protection and to frame hoarding/enclosures.

Sub-task 9.01 — Erects scaffolding.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

9.01.01	knowledge of applicable governmental codes and regulations and jobsite specific rules
9.01.02	knowledge of types of scaffolding such as Baker's, frame and brace, mast-climber system, and tube and clamp
9.01.03	knowledge of mobile and stationary scaffolding
9.01.04	knowledge of scaffolding components such as outriggers, hardware and fasteners
9.01.05	knowledge of brace and platform sizes
9.01.06	ability to select and use tools and equipment such as levels and hammers
9.01.07	ability to fasten scaffolding components
9.01.08	ability to secure scaffolding for stability
9.01.09	ability to select and install bracing for the specific job
9.01.10	ability to work around obstacles such as stairwells, open holes and columns
9.01.11	ability to ensure a secure and level base using methods such as installing mud sills and bases, and shimming
9.01.12	ability to raise scaffolding components using techniques such as hand bombing and rigging
9.01.13	ability to place and use counterweights and secure scaffold systems

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Sub-task
9.02 **Inspects scaffolding.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

9.02.01	knowledge of applicable governmental codes and regulations and jobsite specific rules
9.02.02	knowledge of types of scaffolding such as frame and brace, mast-climber system, and tube and clamp
9.02.03	knowledge of scaffolding components such as clamps (swivel and right-angle), planking, outriggers and fasteners
9.02.04	knowledge of mobile and stationary scaffolding
9.02.05	knowledge of overhang limitations when working with planking
9.02.06	knowledge of tagging requirements for access

9.02.07	knowledge of safety inspection requirements for scaffolding
9.02.08	ability to visually check welds, bracing components and planks
9.02.09	ability to visually identify faults such as stress cracks, warps, and bent bracing and frames
9.02.10	ability to tag components for repair or replacement
9.02.11	ability to remove defective components and scaffolding from service

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Sub-task 9.03 **Maintains scaffolding.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

9.03.01	knowledge of maintenance requirements
9.03.02	ability to clean scaffolding
9.03.03	ability to lubricate screw jacks
9.03.04	ability to maintain platforms
9.03.05	ability to select and use cleaning tools such as wire brushes, scrapers and hammers
9.03.06	ability to grease motorized and mechanical scaffolding

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Sub-task 9.04 **Tends to scaffold erectors.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

9.04.01	knowledge of applicable governmental codes and regulations and jobsite specific rules
9.04.02	knowledge of types of scaffolding such as Baker's, frame and brace, mast-climber system, and tube and clamp
9.04.03	knowledge of scaffolding components such as clamps (swivel and right-angle), planking, outriggers and fasteners
9.04.04	knowledge of mobile and stationary scaffolding

9.04.05	ability to recognize brace and platform sizes
9.04.06	ability to select and use tools and equipment such as measuring tapes, wedges, levels, adjustable wrenches and hammers
9.04.07	ability to pass tools, equipment and components to scaffold erectors

Sub-task 9.05 **Dismantles scaffolding.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

9.05.01	knowledge of types of scaffolding such as mast-climber system, tube and clamp, and frame and brace
9.05.02	knowledge of scaffolding components such as beam clamps, swivel clamps and planking
9.05.03	ability to select and use tools and equipment such as adjustable wrenches, hammers and pry bars
9.05.04	ability to determine starting point and procedure for dismantling
9.05.05	ability to lower scaffolding components using techniques such as hand bombing and rigging
9.05.06	ability to prepare scaffolding components for shipping

Task 10 Uses access equipment.

Context Access equipment includes ladders as well as power elevated work platforms. It is used to access work areas at heights, and for ease of mobility. It is important for construction craft workers to be competent in its use to perform many of their tasks safely.

Sub-task 10.01 **Uses ladders.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

10.01.01	knowledge of types of ladders such as extension, platform and stepladders
10.01.02	knowledge of regulations for using ladders such as placement, 3-point contact, overhang and kickplates
10.01.03	knowledge of capabilities and applications of types of ladders
10.01.04	knowledge of limitations and hazards of using ladders
10.01.05	ability to set ladder according to required ratio
10.01.06	ability to assess and prepare the ground before using ladder
10.01.07	ability to construct ladder as allowed and according to specifications

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Sub-task
10.02 **Uses power-elevated work platforms.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

10.02.01	knowledge of types of power-elevated work platforms such as scissor lifts, bucket lifts and swing stages
10.02.02	knowledge of training and certification requirements
10.02.03	knowledge of limitations and procedures for use of power-elevated work platforms
10.02.04	knowledge of weight capacities of power-elevated work platforms and extensions
10.02.05	ability to assess and prepare the ground before using power elevated work platforms
10.02.06	ability to use controls such as emergency switches, outrigger controls and gas/propane switches
10.02.07	ability to set outriggers and pads
10.02.08	ability to use counterweights for swing stages

Sub-task
10.03 **Inspects access equipment.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

10.03.01	knowledge of applicable governmental codes and regulations
10.03.02	knowledge of types of ladders such as extension, platform and step
10.03.03	knowledge of types of power elevated work platforms such as scissor lifts, bucket lifts and swing stages
10.03.04	knowledge of safety inspection requirements for power elevated work platforms
10.03.05	ability to visually examine components such as hydraulic lines, batteries, nuts, bolts, cables and outriggers
10.03.06	ability to identify faults such as cracking, leaks in lines, corrosion and fraying cables
10.03.07	ability to tag components for repair or replacement
10.03.08	ability to check emergency shut-off
10.03.09	ability to identify ladder defects such as bent rungs, split rails and cracks

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Sub-task
10.04 **Maintains access equipment.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

10.04.01	knowledge of applicable governmental codes and regulations
10.04.02	knowledge of types of ladders such as extension, platform and step
10.04.03	knowledge of types of power elevated work platforms such as scissor lifts, bucket lifts and swing stages
10.04.04	ability to grease power elevated work platform components
10.04.05	ability to clean work platforms and ladder rungs
10.04.06	ability to maintain equipment batteries by charging and maintaining water level
10.04.07	ability to refuel gas- and diesel-powered work platforms
10.04.08	ability to maintain fluids such as hydraulic fluids and oils

Trends

New materials used to construct forms are being introduced to make them lighter and easier to use and to improve productivity and longevity. For example, aluminium, fibreglass and plastic forms are being used in commercial and residential applications. Insulated concrete forms (ICF) are also used more often in formwork.

New products and finishes are being applied to concrete, such as stamped concrete, acid etching and exposed aggregates.

Concrete is increasingly used for aesthetic applications, such as countertops and signage.

Related Components (include, but not limited to)

Formwork: shoring, shoring hardware, mud sills, strongbacks, turnbuckles, walers, clamps, wedges, ties, clips, embeds.

Concrete, grout, epoxies, caulking, admixtures (plasticizers, accelerators, colours, hardeners), bonding agents, acids, polyethylene, burlap, curing compounds, sealers, form release agents.

Tools and Equipment

Hand tools, power tools, powder actuated equipment, transportation equipment, rigging and hoisting equipment, access equipment, PPE and safety equipment.

Task 11 Forms concrete.

Context

Concrete forms are the beginning structure in most construction projects. They are used for architectural and structural applications. They hold and support concrete until it is set.

Sub-task 11.01 Installs shoring for formwork.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	no	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

11.01.01 knowledge of types of shoring such as fixed, telescoping and scaffold

11.01.02	knowledge of shoring hardware such as anchor pins, spring clips and base plates
11.01.03	knowledge of shoring ratings and regulations
11.01.04	knowledge of spacing of shoring
11.01.05	ability to select and use tools and equipment such as hammers, hydraulic jacks and impact wrenches
11.01.06	ability to read shoring specifications
11.01.07	ability to adjust shoring according to situation
11.01.08	ability to ensure stable ground by installing mud sills or compacting ground
11.01.09	ability to brace shoring near slab edge
11.01.10	ability to plumb shores

Sub-task
11.02 **Sets up formwork.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	no	yes	yes	no	yes	yes	no	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

11.02.01	knowledge of types of forms such as steel, handset (loose) and void
11.02.02	knowledge of formwork components such as strongbacks, turnbuckles, walers, clamps, wedges, ties and clips
11.02.03	knowledge of ratings and applications of types of formwork
11.02.04	knowledge of materials used to create forms
11.02.05	knowledge of form bracing
11.02.06	ability to ensure ground is compacted
11.02.07	ability to select and use tools and equipment such as measuring tapes, levels, plumb bobs and saws
11.02.08	ability to apply form release agents
11.02.09	ability to assemble and fasten formwork components as allowed
11.02.10	ability to use form liners for desired finish
11.02.11	ability to modify formwork as needed

Sub-task
11.03 **Checks assembled formwork.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	no	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

11.03.01	knowledge of types of forms such as steel, handset (loose) and void
11.03.02	knowledge of formwork components such as strongbacks, turnbuckles, walers, clamps, wedges, ties and clips
11.03.03	knowledge of locations requiring inspection such as steps, deadwalls, bulkheads and corners
11.03.04	ability to select and use measuring tools for inspection such as measuring tapes and levels
11.03.05	ability to recognize defects in formwork
11.03.06	ability to verify elevations and layout
11.03.07	ability to verify forms for the desired finish

Sub-task
11.04 **Dismantles formwork.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

11.04.01	knowledge of types of forms such as steel, and handset (loose)
11.04.02	knowledge of formwork components such as strongbacks, turnbuckles, walers, clamps, wedges, ties and clips
11.04.03	knowledge of dismantling procedures and sequences
11.04.04	ability to prepare plan for dismantling formwork
11.04.05	ability to select and use tools and equipment such as pry bars, wrenches and hammers
11.04.06	ability to organize formwork components for reuse or transport

Sub-task 11.05 Maintains formwork.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

11.05.01	knowledge of types of forms such as steel, and handset (loose)
11.05.02	knowledge of formwork components such as strongbacks, turnbuckles, walers, clamps, wedges, ties and clips
11.05.03	knowledge of ratings and applications of types of formwork
11.05.04	ability to inspect disassembled formwork components for deficiencies and damage
11.05.05	ability to apply form release agents
11.05.06	ability to clean formwork components in order to reuse them
11.05.07	ability to select and use tools and equipment such as grinders (for metal formwork), rollers and sprayers
11.05.08	ability to tighten fasteners on formwork
11.05.09	ability to store formwork

Task 12 Places and finishes concrete.

Context Proper mixing of concrete is very important to prevent voids, and to ensure the desired strength and consistency. Placement of the concrete includes pouring and establishing a rough-grade. It is then finished to make it level and achieve the final appearance. Concrete cures by holding moisture; it is important for construction craft workers to keep concrete hydrated during this process to avoid shrinkage and cracking.

Sub-task 12.01 Mixes concrete.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	no	yes	no	ND	ND	ND

Supporting Knowledge & Abilities

12.01.01	knowledge of types of concrete
12.01.02	knowledge of strengths of concrete
12.01.03	knowledge of concrete aggregates and their properties
12.01.04	knowledge of concrete admixtures such as plasticizers and accelerators
12.01.05	ability to follow instructions such as ratios, mixing times and compatibilities
12.01.06	ability to select materials for specific use
12.01.07	ability to select and use tools and equipment such as mixers, drills, mixing paddles, pails and trowels
12.01.08	ability to plan for mixing according to work schedule, weather conditions, air flow and humidity
12.01.09	ability to colour concrete

Sub-task 12.02 **Transports concrete on site.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

12.02.01	knowledge of access and egress considerations
12.02.02	ability to plan route
12.02.03	ability to select and use transporting equipment such as wheelbarrows, telescopic forklifts, power buggies, skid steers and pails
12.02.04	ability to use concrete pumps, conveyors and associated equipment

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Sub-task 12.03 **Installs components in concrete.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

12.03.01	knowledge of components such as dowels, safety lines, keyways, anchor bolts, and steel plates

12.03.02	knowledge of component installation methods for freshly placed concrete such as wet dowelling, and installing anchor bolts
12.03.03	knowledge of cured concrete component installation methods such as drilling, chipping and saw cuts
12.03.04	ability to select and use tools and equipment such as measuring tapes, string lines, hammers, levels and drills
12.03.05	ability to measure and layout location of components

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Sub-task 12.04 **Places concrete.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

12.04.01	knowledge of pour rates
12.04.02	knowledge of concrete transportation and pouring equipment such as line pumps and boom pumps
12.04.03	knowledge of height from which concrete may be poured
12.04.04	knowledge of additives such as accelerators and plasticizers
12.04.05	knowledge of surface preparation requirements
12.04.06	ability to plan and sequence concrete placement
12.04.07	ability to select and use tools and equipment such as concrete vibrators, stationary pumps, rakes, shovels and screed boards
12.04.08	ability to ensure level pour with methods such as wet screeding and using height sticks (screed bars)
12.04.09	ability to vibrate concrete
12.04.10	ability to rake concrete
12.04.11	ability to screed concrete
12.04.12	ability to recognize and rectify surface irregularities such as dips, high spots and holes
12.04.13	ability to spray concrete materials such as shotcrete and gunnite

Sub-task
12.05 **Assists with finishing concrete.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	no	yes	no	ND	ND	ND

Supporting Knowledge & Abilities

12.05.01	knowledge of admixtures such as accelerators, plasticizers, colours and hardeners
12.05.02	knowledge of types of finishes such as hard float, broomed, polished, exposed aggregate and burn finish
12.05.03	knowledge of finishing processes such as floating, trowelling and edging
12.05.04	knowledge of timing for finishing processes
12.05.05	ability to select and use finishing tools and equipment such as floats, trowels, edgers and brooms

Sub-task
12.06 **Controls concrete curing process.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

12.06.01	knowledge of effects of weather conditions on the curing process
12.06.02	knowledge of effects of surrounding area on the curing process such as fumes, dust and heat
12.06.03	knowledge of rate and time for cure
12.06.04	ability to use soaker hoses and sprinklers
12.06.05	ability to use materials for curing process such as polyethylene, burlap and straw
12.06.06	ability to apply curing compounds and sealers

Task 13 Modifies concrete.

Context Concrete may be modified after it has been installed. These tasks may be done to create openings, maintain structural integrity or simply for aesthetic reasons.

Sub-task 13.01 **Drills/cores concrete.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

13.01.01	knowledge of wet and dry drilling procedures
13.01.02	knowledge of types and properties of concrete to be drilled/cored
13.01.03	knowledge of reasons for drilling/coring concrete such as adding components, running sleeves, fastening items and demolition
13.01.04	knowledge of embedded items such as water lines, electrical conduit and rebar
13.01.05	ability to select and use drilling and coring tools and bits

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Sub-task 13.02 **Prepares concrete surface for add-ons.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

13.02.01	knowledge of chemical agents such as bonding agents and acids
13.02.02	ability to select and use tools and equipment
13.02.03	ability to mechanically remove finish using methods such as chipping, bush hammering, media blasting and scarifying
13.02.04	ability to chemically remove finish using acids
13.02.05	ability to clean surface after abrasion processes

Sub-task
13.03 **Repairs concrete.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	no	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

13.03.01	knowledge of products used for repair such as bonding agents, epoxies and grout
13.03.02	knowledge of deficiencies in concrete that can be repaired
13.03.03	knowledge of finishing requirements
13.03.04	ability to mechanically repair concrete using equipment such as grinders with diamond wheels, floor grinders and stones
13.03.05	ability to install patching materials to repair honeycombs

Sub-task
13.04 **Installs concrete joints.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

13.04.01	knowledge of reasons for installing concrete joints to control cracking and shrinkage
13.04.02	knowledge of types of joints such as expansion, control and isolation
13.04.03	knowledge of depth and spacing of joints
13.04.04	knowledge of types of cuts such as green cuts, wet cuts and dry cuts
13.04.05	ability to install plastic strips to control shrinkage cracks
13.04.06	ability to create keyways
13.04.07	ability to select and use tools and equipment such as saws and groovers (two-sided edgers, dividers)

Sub-task
13.05 **Refinishes concrete surfaces.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	no	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

13.05.01	knowledge of refinishing methods such as painting, epoxy coating, acid staining and acid etching
13.05.02	knowledge of products used for refinishing such as bonding agents and patching materials
13.05.03	knowledge of refinishing requirements
13.05.04	ability to mechanically refinish concrete using equipment such as grinders with diamond wheels, floor grinders, stones and sponges
13.05.05	ability to parge concrete surfaces

Task 14 Installs grout, epoxies and caulking.

Context Grout and epoxies provide structural integrity to structures. Caulking is used to seal against leaks and for an aesthetic finish.

Sub-task
14.01 **Installs grout.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

14.01.01	knowledge of types of grout products and their applications
14.01.02	ability to mix grout to required consistency
14.01.03	ability to select and use tools and equipment for grouting such as trowels, shovels, drills, sponges and brushes
14.01.04	ability to apply grout to surfaces such as ceilings, walls and columns
14.01.05	ability to trowel grout to a smooth finish
14.01.06	ability to shape grout

14.01.07	ability to follow manufacturers' specifications for use and application
14.01.08	ability to colour grout

Sub-task 14.02 **Installs epoxies.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

14.02.01	knowledge of types of epoxies such as liquid and paste
14.02.02	knowledge of hazards and precautions to be considered when working with epoxies
14.02.03	ability to pre-plan for work with epoxies
14.02.04	ability to mix epoxies
14.02.05	ability to prepare surfaces by cleaning
14.02.06	ability to work within time constraints of epoxies
14.02.07	ability to use fillers such as insulation or backing rod
14.02.08	ability to select and use tools and equipment for epoxies such as paddles, cleaning equipment and epoxy guns

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Sub-task 14.03 **Installs caulking.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	no	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

14.03.01	knowledge of types of caulking such as exterior and interior
14.03.02	knowledge of manufacturers' specifications
14.03.03	knowledge of time constraints and product properties
14.03.04	ability to prepare exposed surfaces
14.03.05	ability to select and use tools and equipment such as caulking gun and cleaning equipment
14.03.06	ability to apply a steady bead

14.03.07	ability to use fillers such as insulation and backing rod
14.03.08	ability to remove dried caulking

BLOCK E — MASONRY WORK

Trends

There is a trend towards the use of mega mixers and mast climber scaffolding systems. Composite blocks have been introduced to the industry.

There is an increased requirement for worker certification to use equipment and to work with fireproofing materials.

Related Components (include, but not limited to)

Masonry units, scaffolding, fireproofing materials, refractory materials, lintels, mortars, grouts, ties and anchors, rough bucks.

Tools and Equipment

See Appendix A.

Task 15 — Prepares for masonry work.

Context

Preparing for masonry work is an important task for the construction craft worker trade. This must be done to ensure productivity and safety on masonry projects and is often done prior to the arrival of bricklayers on the site.

This task includes setting up masonry materials, transporting materials to and around the site, organizing the materials and mixing mortar and grout.

Sub-task 15.01 — **Sets up masonry materials.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

15.01.01	knowledge of materials and products required for masonry tasks
15.01.02	knowledge of placement of raw materials
15.01.03	knowledge of required certification and licensing for operating lift equipment
15.01.04	ability to distribute masonry materials onto scaffolding according to amounts needed and scaffolding capacities
15.01.05	ability to contain spillage using methods such as laying out polyethylene sheets under mixing equipment
15.01.06	ability to prepare and organize masonry work area
15.01.07	ability to prepare power tools and equipment
15.01.08	ability to select and use transportation equipment such as forklifts, skid steers, telescopic forklifts and wheelbarrows
15.01.09	ability to load and unload masonry materials
15.01.10	ability to cut masonry reinforcing material to required length and size

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Sub-task
15.02 **Mixes mortars and grouts.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

15.02.01	knowledge of types of mortars and grouts
15.02.02	ability to select and use tools and equipment such as mixers and paddles
15.02.03	ability to follow instructions such as ratios, mixing time and compatibilities
15.02.04	ability to mix required amounts of mortars and grouts for work planned
15.02.05	ability to determine consistency of mortar and grout
15.02.06	ability to adjust mix to weather conditions
15.02.07	ability to continuously work mortar to maintain desired consistency
15.02.08	ability to colour mortars and grout with dyes and aggregates
15.02.09	ability to use additives such as anti-freezing agents

Task 16 Tends to bricklayers.

Context Construction craft workers work with bricklayers by performing a variety of tasks, including hoarding, and setting up and constantly modifying scaffolding. This is physically demanding work and requires constant stocking of masonry units. Construction craft workers must be able to operate powered equipment such as telescoping forklifts and pallet jacks.

Sub-task 16.01 Cuts masonry units.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	no	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

16.01.01	knowledge of types of masonry units such as bricks, refractory materials, tiles and blocks
16.01.02	knowledge of types of brick such as keyed, insulating and fire
16.01.03	knowledge of types of block such as acoustical, veneer, bullnose and rough-faced
16.01.04	knowledge of governmental regulations in cutting masonry units
16.01.05	knowledge of cutting procedures
16.01.06	knowledge of confined space hazards, required training and regulations
16.01.07	ability to plan cuts to avoid waste
16.01.08	ability to select and operate tools and equipment such as tile cutters, curry combs, brick saws, guillotines and wet saws

Sub-task 16.02 Installs lintels and rough bucks.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	no	no	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

16.02.01	knowledge of types of lintels such as channel iron, wood, and pre-cast and poured concrete

16.02.02	knowledge of applications of rough bucks such as window and door frames
16.02.03	ability to install lintels and rough bucks
16.02.04	ability to remove rough bucks

Sub-task
16.03 **Washes masonry units.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

16.03.01	knowledge of cleaning agents used such as muriatic acid and water
16.03.02	knowledge of applications for washing such as removing mortar, efflorescence, epoxy and grouts
16.03.03	knowledge of environmental concerns of using muriatic acid
16.03.04	ability to mix chemicals according to directions
16.03.05	ability to select and use tools and equipment such as pressure washers, scissor lifts and scrub brushes
16.03.06	ability to recognize hazards such as inhalation of chemicals, chemical burns and equipment in motion
16.03.07	ability to rinse chemicals from masonry units

Sub-task
16.04 **Assists with the installation of refractory materials.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

16.04.01	knowledge of types of refractory material such as bricks, gunnite and ram
16.04.02	knowledge of locations using refractory materials such as boilers, furnaces and kilns
16.04.03	knowledge of mortars used in refractory applications
16.04.04	knowledge of hazards and precautions to be considered when working with refractory materials
16.04.05	ability to mix refractory materials

16.04.06	ability to install refractory materials as allowed according to governmental regulations and jobsite-specific rules
16.04.07	ability to clean up after refractory applications (rebound)

Sub-task 16.05 **Uses fireproofing materials.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

16.05.01	knowledge of types of fireproofing materials such as mineral wool, caulking, and cementitious materials
16.05.02	knowledge of applications for fireproofing materials such as surface penetrations, and protecting beams, columns and walls
16.05.03	knowledge of training and certification requirements
16.05.04	ability to select and use tools and equipment such as mixers, trowels and spray equipment
16.05.05	ability to mix materials using paddles and hand mixers
16.05.06	ability to apply fireproofing materials using methods such as spray-on and trowel-on
16.05.07	ability to recognize hazards such as particulates and electrical hazards
16.05.08	ability to repair fireproofing materials

BLOCK F — UTILITIES AND PIPELINE

Trends

There is an increased use of robotic cameras for the inspection of water and sewer pipes in order to ensure quality of pipe and to detect leaks.

More municipalities are using ceramic water supply piping to reduce the need for replacement.

There is an increased practice of remediation of pipes in order to extend their lifespan.

Related Components (include, but not limited to)

Utilities: piping, catch basins, manholes, grade rings, shims, rubber seals, valves, hydrants, pressure chambers, clamps, T's, elbows, Y's, culverts, thrust blocks, insulation, grouts.

Pipeline: blocking, coatings, rock shield, silt fencing, filter fabrics.

Tools and Equipment

Hand tools, power tools, stationary equipment, rigging and hoisting equipment, pipe lasers, pneumatic tools and equipment, measuring and layout tools and equipment, PPE and safety equipment.

Task 17 — Installs utility piping.

Context

Construction craft workers work with a wide variety of pipe, components and application techniques when installing utility piping. Knowledge of grade and elevations is crucial when working with utility piping. Hazardous materials such as asbestos and lead may be encountered when repairing existing pipe.

Sub-task 17.01 — Installs pipe for water systems.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	no	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

17.01.01 knowledge of types of pipe used for water systems such as plastic, cast iron, concrete, ceramic and ductile

17.01.02 knowledge of connecting methods such as fused, and bell and spigot

17.01.03	knowledge of existing grade
17.01.04	ability to assist in directional drilling to avoid disruptions on highways and rivers
17.01.05	ability to install adequate bedding material, insulation and backfill material
17.01.06	ability to install thrust blocks to eliminate line breaks
17.01.07	ability to select, cut and fit sections according to plans and specifications
17.01.08	ability to connect pipe sections using components such as clamps and rubber seals
17.01.09	ability to bed the pipe using material such as pea gravel and sand
17.01.10	ability to add chemicals for chlorination
17.01.11	ability to flush chemicals from waterline

Sub-task 17.02 **Installs pipe for sewer systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	no	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

17.02.01	knowledge of types of sewer lines such as raw sewer and storm sewers
17.02.02	knowledge of types of pipe used such as plastic, concrete and composite
17.02.03	knowledge of components such as rubber seals, manholes and catch basins
17.02.04	ability to use tools and equipment such as laser levels, hand levels and pinch bars
17.02.05	ability to bed the pipe using material such as pea gravel and sand
17.02.06	ability to install adequate bedding material, insulation and backfill material
17.02.07	ability to select, cut and fit sections according to plans and specifications
17.02.08	ability to connect sewer pipe sections using bell and spigot joints
17.02.09	ability to install rubber seals using lubricants

Sub-task 17.03 **Installs utility components.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	no	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

17.03.01	knowledge of types of water pipe components such as valves and hydrants
17.03.02	knowledge of types of sewer pipe components such as manholes, catch basins, grade rings and covers
17.03.03	knowledge of manhole construction
17.03.04	ability to establish and maintain grades of components
17.03.05	ability to establish and install bases such as pre-cast and poured concrete, and compacted earth according to required grade
17.03.06	ability to cut holes in catch basins and manholes
17.03.07	ability to level and plumb components such as hydrants, manholes and valves
17.03.08	ability to install and connect pipe to components using materials such as grout, concrete and rubber seals
17.03.09	ability to install shims and grade rings to bring last installed component to final-grade
17.03.10	ability to attach rigging equipment for manholes

Sub-task
17.04 **Modifies existing pipe.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	no	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

17.04.01	knowledge of types of pipe that may require modifying such as plastic, ductile and concrete
17.04.02	knowledge of reasons for modification such as leaks, repairs and additions
17.04.03	ability to repair water breaks and leaks using materials such as foam, coatings, quick set concrete, clamps and mechanical joints
17.04.04	ability to use bladders to isolate sections
17.04.05	ability to tap pipes for additional lines
17.04.06	ability to recognize hazardous piping materials such as asbestos and lead

Sub-task
17.05 **Assists with testing water and sewer lines.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	no	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

17.05.01	knowledge of specifications related to water pressure
17.05.02	ability to use tools and equipment such as cameras, compressors and water taps
17.05.03	ability to isolate sections of pipe using shut offs for testing
17.05.04	ability to hydrotest water and sewer lines
17.05.05	ability to locate leaks
17.05.06	ability to interpret gauge readings
17.05.07	ability to use bladders to isolate sections

Task 18 Performs pipeline activities.

Context Working on pipeline construction is a specialty area for construction craft workers. There are more construction craft workers on pipeline construction than any other tradespersons.

Sub-task
18.01 **Constructs right of ways.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	no	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

18.01.01	knowledge of environmental considerations such as highways, rivers, farmlands and existing wetlands
18.01.02	knowledge of governmental regulations and jobsite specific rules
18.01.03	ability to clear brush using tools and equipment such as bush saws and chain saws
18.01.04	ability to recognize hazards such as animals, insects and falling trees

18.01.05	ability to minimize environmental damage
18.01.06	ability to install and interpret clearance markers and signage

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Sub-task
18.02 **Performs pipeline installation.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	no	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

18.02.01	knowledge of rigging methods for pipeline
18.02.02	knowledge of cribbing methods
18.02.03	knowledge of coating methods
18.02.04	ability to place pipe and skids (stringing)
18.02.05	ability to assist bending crew and engineering crew
18.02.06	ability to perform blocking and cribbing
18.02.07	ability to select and use tools and equipment such as media blasters, and jeeping and coating equipment
18.02.08	ability to assist and guide the pipe lowering operation

BLOCK G — ROADWORK

Trends

There is an increased awareness of the health effects of working with hot asphalt.

There is a trend towards using recycled materials in road construction.

As well, the use of placing asphalt over concrete is becoming more popular.

Related Components (include, but not limited to)

Aggregates, signage, barriers, culverts, manholes, catch basins, piping.

Tools and Equipment

Hand tools, power tools, stationary equipment, rigging and hoisting equipment, PPE and safety equipment.

Task 19 — Installs paving materials.

Context

Construction craft workers work with paving machines to spread concrete and asphalt. They manually spread, shovel and rake asphalt where the machines cannot operate. They also apply adhesives and primers, and repair asphalt.

Sub-task 19.01 — **Places paving materials.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

19.01.01	knowledge of types of chemical additives
19.01.02	knowledge of location of manholes and catch basins
19.01.03	ability to rake paving to base (sub) and finish-grade
19.01.04	ability to feather around manholes, catch basins and curbs
19.01.05	ability to manually compact paving material

19.01.06	ability to recognize hazards of placing paving materials such as burns, exposure to chemicals and traffic
19.01.07	ability to apply adhesives and primers

Sub-task 19.02 **Modifies existing paving materials.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

19.02.01	knowledge of amount of paving materials to remove when repairing
19.02.02	ability to cut paving materials to install utilities and components
19.02.03	ability to repair defects such as pot holes and cracks
19.02.04	ability to select and use tools and equipment such as quick-cut saws, diamond blade saws (walk-behind saw), jackhammers and plate tampers
19.02.05	ability to apply adhesives and primers
19.02.06	ability to dig out loose material and replace with gravel

Task 20 Installs roadwork components.

Context Construction craft workers are required to install culverts, barriers and signage. Additional certification may be required for the installation of roadwork signage. Safety is of the utmost importance when working on roadwork construction.

Sub-task 20.01 **Installs barriers.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

20.01.01	knowledge of types of barriers such as pedestrian, guard and jersey barriers

20.01.02	knowledge of materials used for barriers such as concrete, steel and wood
20.01.03	knowledge of regulations regarding installation of barriers
20.01.04	knowledge of applications of barriers such as temporary and permanent
20.01.05	ability to select and use tools and equipment such as forklifts, drills, prybars and post hole diggers
20.01.06	ability to select barriers according to regulations and specifications
20.01.07	ability to determine location for barriers
20.01.08	ability to secure barriers using fasteners

Sub-task
20.02 **Installs road markings and signs.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

20.02.01	knowledge of training and certification requirements
20.02.02	knowledge of types of road markings such as reflective tape and painted lines
20.02.03	knowledge of types of temporary and permanent road signs
20.02.04	knowledge of regulations related to road markings and signage
20.02.05	ability to place road markings and signage according to regulations
20.02.06	ability to secure signage
20.02.07	ability to select and use tools and equipment such as measuring tapes, post augers, frost pins and sledge hammer
20.02.08	ability to interpret project-specific traffic control plan drawings

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Sub-task
20.03 **Installs culverts.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
yes	yes	yes	yes	yes	no	yes	yes	yes	yes	ND	ND	ND

Supporting Knowledge & Abilities

20.03.01	knowledge of types of culverts such as galvanized steel, plastic and concrete

20.03.02	knowledge of sizes of culverts
20.03.03	knowledge of connection methods such as bell and spigot, clamped and butted
20.03.04	ability to select and use tools and equipment such as wrenches and levels
20.03.05	ability to assemble culvert sections
20.03.06	ability to install bedding for culverts to achieve the grading required to ensure drainage
20.03.07	ability to install rip-rap

APPENDICES

APPENDIX A TOOLS AND EQUIPMENT

Hand Tools

adjustable wrench
asphalt spreader
axe
bar (wrecking, pin, crow, pry)
bolt cutter
broom
brush
bucket/pail
bull float
cable cutter
caulking gun
C-clamp
chisel
edger
file (flat, round)
float (wood, magnesium, steel, aluminium, rubber)
grease gun
hammer stapler
hammer (ball peen, claw, sledge, dead blow, axe, brass)
hand level
hand saw
hand trowel
lining (line-up) bar
magnet
mop
pick axe
pliers (needle nose, slip joint, linesmen)
punch (knock-out type, various sizes)
rake (concrete, asphalt, landscaping, fan)
rubber mallet
scraper
screwdriver (flat, Phillips, Robertson)
shovel (square, truncheon, spade, scoop, snow)
sidewalk groover
snip (heavy duty wire cutting)
socket wrench set
sponge
spooler (for tie wire)
sprayer
squeegee
staple gun
tarpaulin
tool belt and apron
trowel
twister
water drum
water hose
watering can
wire brush

Power Tools

angle grinder
blow torch
chain saw
chipping gun and bit
chipping hammer
circular saw and blade
concrete vibrator
coring machine and bit
diamond or abrasive disc
disc sander
electric drill
extension cord
flashlight
grinder
hand-held and stationary radio
hydraulic jack
impact wrench/gun (electric and pneumatic)
jig saw
light

Power Tools (continued)

mechanical spreader
media blaster
oxy-acetylene cutting torch
portable concrete mixer
portable sprayer
powder-actuated tool
power sprayer
pressure pump
pressure washer
pump
quick-cut saw
reciprocating saw
steam cleaner
tamper (vibratory, plate, roller)
vacuum cleaner
weed trimmer
wire wheel (component of grinder)

Stationary Equipment

cut-off saw
compressor
generator
heater
mixer
table saw
tool box
water pump

Pneumatic Tools and Equipment

chipper
compactor
drill (stopper, jack-leg, ratchet)
grinder
hammer
jack hammer
media-blasting tool
pavement breaker (jackhammer)
pneumatic gun (needle, impact, air, paint)
portable compressor pump
rivet-buster
wand

Rigging and Hoisting Equipment

block and tackle
bridle hitch
chain fall
chains
clevis
come-along (portable winching equipment)
gin wheel
grip hoist (Tirfors ™)
lifting clamp
lifting hook
pulley
roller
rope (nylon, steel, natural fibre, polypropylene)
shackle
sling (nylon, steel, chain, natural fibre, polypropylene)
snatch block
softener
spreader bar
tag line
winch
work cage

Scaffolding and Access Equipment

cherry picker
ladder (extension, platform, stepladder)
man lift
mobile scaffolding
powered elevated platform
scissor lift
stationary scaffolding
suspended platform
suspended scaffold
swing stage
rolling scaffold

Transport Equipment

atv
boat
conveyor
forklift
handcart
manual buggy
power buggy
skid steer
truck
wheelbarrow

Measuring and Layout Tools and Equipment

calculator
carpenter's pencil
chalk line
dew point gun
laptop
level (laser, builders', precision)
marker
measuring tape
pipe locator
plumb bob
scale rule
square
straightedge
stringline
template
theodolite
thermometer
tire pressure gauge
total station
trammel point
transit
tripod and mounting device

Masonry Tools

bolster
brick and stone cutter
brick tongs
corner block
curry comb
face hammer
hawk
jointer (rat tail)
knife
line block
line holder
line pin
line trig
manual splitter
masonry saw
masonry table saw
mason's chisel
mason's trowel
mortar board
mortar box
mortar buggy
mortar hoe
mortar mixer
notched trowel

Masonry Tools (continued)

raker - wheel type
sandbox
sandscreen

Personal Protective Equipment and Safety Equipment

air horn
apron
barrier cream, sunscreen and insect repellent
boots (safety, rubber, insulated, waders)
breathing apparatus
chaps (chain saw, other)
chin strap
coveralls (cloth, paper, chemical)
evacuation box
eye wash station
face shield
fall protection equipment (harness, lanyard, restraining cable, rope grabs, retractable lanyard)
fire blanket
fire extinguisher
fire hose
fire retardant clothing
first aid kit
fit tester kit
gas detection equipment
gloves
hard hat
hazmat protective suit
hearing protection
high visibility vest
knee board and pads
life jacket
megaphone
rain suit
respirator (particles, chemical and vapour)
safety goggles/glasses
self contained breathing apparatus
soap
spill kit
welding flash blind

APPENDIX B GLOSSARY

admixture	material other than water, aggregates and portland cement that is used as an ingredient of concrete and is added to the mix
aggregate	granular material, such as sand, gravel, crushed stone or recycled concrete aggregates used with cement and water to produce concrete
angle of repose	angle at which material lies stable on an embankment of an excavation
benchmarks	temporary elevation established from a monument
berm	an embankment built to contain liquids and gases and prevent them from damaging the environment
bladder	rubber membrane used to isolate a section of pipe or component for testing or repair
bulking	principle that prevents excavated materials being placed
concrete	composition of a binding medium and aggregate; commonly consists of a mixture of cement, aggregate and water in varying proportions; mixture is worked into a plastic state and gains hardness through the hydration of water with the cement
confined space	an area not designed for continuous human occupancy, contains a hazard or the potential of a hazard, and has limited access and egress
curing	the maintenance of a satisfactory moisture content and temperature in concrete during its early stages so that desired properties may develop
daylighting utilities	exposing underground utilities by excavation so that work can be done on the utilities
ductile	type of pipe material
egress	the means of going out or leaving; an exit; an outlet
Fillcrete	a mix of gravel and cement (small amount) used for backfill that does not require compaction
floating	process of using a tool, usually wood or magnesium, in concrete finishing operations to create a relatively even, but still open texture to a fresh concrete surface
form	a temporary structure or mould for the support of concrete while it is setting and gaining sufficient strength to be self-supporting
grout	a mixture of cementitious material and water, with or without aggregate, which may be proportioned and mixed to produce a pourable consistency without segregation of the constituents
gunnite	insulating material that is sprayed on and used in refractory applications

honeycomb	concrete that, due to lack of proper amount of fines or vibration, contains abundant interconnected large voids or cavities
jeeping	a process using electronic current to detect deficiencies (cracks, pinholes) in pipe coatings
kick plate	member placed at the base of ladders to provide stability and prevent kickout
lintel	a beam placed across the top of a rough door or window opening; it supports the weight from above
lintel	support member
monument	permanent established elevation used for surveying
pile drivers	machine used to drive concrete, metal or wood piles
piling	structural column installed into the ground to anchor or support a building and other structures
pipe coating	a coating either sleeved, taped or painted onto pipe to protect it from corrosion and other foreign materials
pipe wraps	components for repairing and sealing pipe
rebound	gunnite material that does not adhere to walls in refractory applications
rip-rapping	material used around culverts and other structures susceptible to erosion
rough buck	temporary form to provide an opening in concrete and masonry
scarify	to roughen a surface of concrete using a scabbler
screeding	the operation of forming a grade surface by the use of a straightedge
settling pond	water containment used to contain sediment before disposing of the water
sheet piling	interlocking metal sheeting used to prevent water movement in an excavation around water ways
shoring (concrete)	supports built to hold concrete formwork
shoring (excavation)	supports built inside an excavation to retain soil to prevent cave-ins
telescopic forklifts	a forklift with an extending boom
thrust block	poured concrete placed at a turn in pipe to prevent pipe movement
tool crib	facility that stores and organizes tools owned by the company
wet screed	placing concrete on finish-grade across two known points of elevation (called wet screeds)
whip check	small cable choker placed at pressure hose connections to prevent hose from whipping around

APPENDIX C ACRONYMS

CO	carbon monoxide
GFCI	ground fault circuit interrupter
H_2S	hydrogen sulfide
ICF	insulated concrete forms
JHA	job hazard analysis
MSDS	material safety data sheet
OH & S	Occupational Health and Safety
PPE	personal protective equipment
TDG	transportation of dangerous goods
WHMIS	Workplace Hazardous Materials Information System

APPENDIX D BLOCK AND TASK WEIGHTING

BLOCK A OCCUPATIONAL SKILLS

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	National Average
%	10	5	20	13	10	30	15	20	20	30	ND	ND	ND	17%

Task 1 Uses and maintains tools and equipment.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	33	50	50	33	40	40	30	40	40	35	ND	ND	ND	39%

Task 2 Organizes work.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	33	10	20	31	20	20	20	25	30	25	ND	ND	ND	23%

Task 3 Performs routine trade activities.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	34	40	30	36	40	40	50	35	30	40	ND	ND	ND	38%

BLOCK B SITE WORK

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	National Average
%	5	25	20	12	10	15	25	20	20	15	ND	ND	ND	17%

Task 4 Prepares site.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	30	15	20	20	20	20	20	20	25	20	ND	ND	ND	22%

Task 5 Performs ground work.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	20	20	20	20	20	20	25	20	20	25	ND	ND	ND	21%

Task 6 Services site.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	10	25	20	20	20	30	20	20	20	10	ND	ND	ND	19%

Task 7 Performs basic demolition.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	20	20	20	20	20	10	20	20	15	30	ND	ND	ND	19%

Task 8 Performs safety watches.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	20	20	20	20	20	20	15	20	20	15	ND	ND	ND	19%

BLOCK C SCAFFOLDING AND ACCESS EQUIPMENT

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	National Average
%	5	20	20	12	10	20	10	10	20	10	ND	ND	ND	14%

Task 9 Uses scaffolding.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	50	70	60	50	60	50	45	60	50	40	ND	ND	ND	54%

Task 10 Uses access equipment.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	50	30	40	50	40	50	55	40	50	60	ND	ND	ND	46%

BLOCK D CONCRETE WORK

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	National Average
%	20	15	20	15	20	20	20	20	25	20	ND	ND	ND	20%

Task 11 Forms concrete.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	30	10	30	27	10	40	30	25	20	15	ND	ND	ND	24%

Task 12 Places and finishes concrete.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	30	30	30	33	30	40	45	25	40	40	ND	ND	ND	34%

Task 13 Modifies concrete.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	20	35	30	20	30	10	15	25	10	20	ND	ND	ND	22%

Task 14 Installs grout, epoxies and caulking.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	20	25	10	20	30	10	10	25	30	25	ND	ND	ND	20%

BLOCK E MASONRY WORK

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	National Average
%	20	15	10	12	10	10	5	10	5	7	ND	ND	ND	10%

Task 15 Prepares for masonry work.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	50	60	50	50	50	55	40	50	70	40	ND	ND	ND	52%

Task 16 Tends to bricklayers.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	50	40	50	50	50	45	60	50	30	60	ND	ND	ND	48%

BLOCK F UTILITIES AND PIPELINE

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	National Average
%	20	15	5	20	20	0	15	10	5	10	ND	ND	ND	12%

Task 17 Installs utility piping.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	50	80	50	50	90	0	70	65	70	65	ND	ND	ND	66%

Task 18 Performs pipeline activities.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	50	20	50	50	10	0	30	35	30	35	ND	ND	ND	34%

BLOCK G ROADWORK

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	National Average
%	20	5	5	16	20	5	10	10	5	8	ND	ND	ND	10%

Task 19 Installs paving materials.

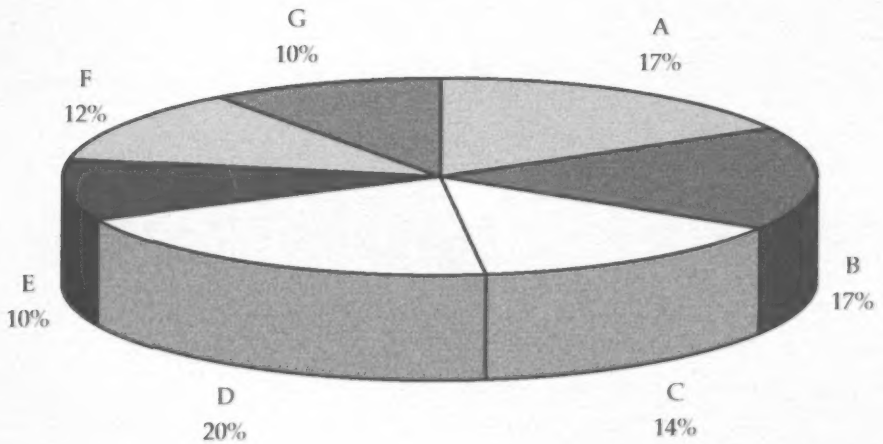
	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	50	30	30	45	60	50	65	60	70	70	ND	ND	ND	53%

Task 20 Installs roadwork components.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	50	70	70	55	40	50	35	40	30	30	ND	ND	ND	47%

APPENDIX E

PIE CHART*



TITLES OF BLOCKS

BLOCK A	Occupational Skills	BLOCK E	Masonry Work
BLOCK B	Site Work	BLOCK F	Utilities and Pipeline
BLOCK C	Scaffolding and Access Equipment	BLOCK G	Roadwork
BLOCK D	Concrete Work		

* Average percentage of the total number of questions on an interprovincial examination, assigned to assess each block of the analysis, as derived from the collective input from workers within the occupation from all areas of Canada. Interprovincial examinations typically have from 100 to 150 multiple-choice questions.

APPENDIX F

TASK PROFILE CHART
Construction Craft Worker

	BLOCKS	TASKS	SUB-TASKS				
A	OCCUPATIONAL SKILLS	1. Uses and maintains tools and equipment.	1.01 Maintains hand tools.	1.02 Maintains power tools.	1.03 Maintains powder-actuated tools.	1.04 Uses rigging and hoisting equipment.	1.05 Uses stationary equipment.
			1.06 Uses personal protective equipment (PPE) and safety equipment.				
		2. Organizes work.	2.01 Uses documentation.	2.02 Communicates with others.	2.03 Maintains safe work environment.	2.04 Organizes individual's work tasks.	
		3. Performs routine trade activities.	3.01 Handles construction materials.	3.02 Performs housekeeping duties.	3.03 Erects hoarding/ enclosures.	3.04 Installs membranes.	3.05 Installs insulating materials.
			3.06 Establishes grades and elevations.	3.07 Performs traffic control.	3.08 Installs permanent and temporary fencing.		
B	SITE WORK	4. Prepares site.	4.01 Clears site.	4.02 Sets up site facilities.	4.03 Assists in installation of pilings.		
		5. Performs ground work.	5.01 Locates underground utilities.	5.02 Performs excavation.	5.03 Installs excavation shoring.	5.04 Performs backfill and compaction.	
		6. Services site.	6.01 Cleans site.	6.02 Cleans jobsite facilities.	6.03 Removes hazardous materials.	6.04 Controls water runoff.	6.05 Sets up temporary lighting.
			6.06 Sets up generators and compressors.	6.07 Performs site restoration.	6.08 Mans tool crib.	6.09 Recycles materials.	

BLOCKS	TASKS	SUB-TASKS				
	7. Performs basic demolition.	7.01 Cuts materials.	7.02 Dismantles existing structures and components.			
	8. Performs safety watches.	8.01 Monitors hazardous gases.	8.02 Performs spark watch.	8.03 Performs bottle watch.	8.04 Performs confined space watch.	8.05 Monitors heaters.
C SCAFFOLDING AND ACCESS EQUIPMENT	9. Uses scaffolding.	9.01 Erects scaffolding.	9.02 Inspects scaffolding.	9.03 Maintains scaffolding.	9.04 Tends to scaffold erectors.	9.05 Dismantles scaffolding.
	10. Uses access equipment.	10.01 Uses ladders.	10.02 Uses power-elevated work platforms.	10.03 Inspects access equipment.	10.04 Maintains access equipment.	
D CONCRETE WORK	11. Forms concrete.	11.01 Installs shoring for formwork.	11.02 Sets up formwork.	11.03 Checks assembled formwork.	11.04 Dismantles formwork.	11.05 Maintains formwork.
	12. Places and finishes concrete.	12.01 Mixes concrete.	12.02 Transports concrete on site.	12.03 Installs components in concrete.	12.04 Places concrete.	12.05 Assists with finishing concrete.
		12.06 Controls concrete curing process.				
	13. Modifies concrete.	13.01 Drills/cores concrete.	13.02 Prepares concrete surface for add-ons.	13.03 Repairs concrete.	13.04 Installs concrete joints.	13.05 Refinishes concrete surfaces.
	14. Installs grout, epoxies and caulking.	14.01 Installs grout.	14.02 Installs epoxies.	14.03 Installs caulking.		
E MASONRY WORK	15. Prepares for masonry work.	15.01 Sets up masonry materials.	15.02 Mixes mortars and grouts.			
	16. Tends to bricklayers.	16.01 Cuts masonry units.	16.02 Installs lintels and rough bucks.	16.03 Washes masonry units.	16.04 Assists with the installation of refractory materials.	16.05 Uses fireproofing materials.

BLOCKS	TASKS	SUB-TASKS				
F UTILITIES AND PIPELINE	17. Installs utility piping.	17.01 Installs pipe for water systems.	17.02 Installs pipe for sewer systems.	17.03 Installs utility components.	17.04 Modifies existing pipe.	17.05 Assists with testing water and sewer lines.
	18. Performs pipeline activities.	18.01 Constructs right of ways.	18.02 Performs pipeline installation.			
G ROADWORK	19. Installs paving materials.	19.01 Places paving materials.	19.02 Modifies existing paving materials.			
	20. Installs roadwork components.	20.01 Installs barriers.	20.02 Installs road markings and signs.	20.03 Installs culverts.		